

Application No. 10/001,850

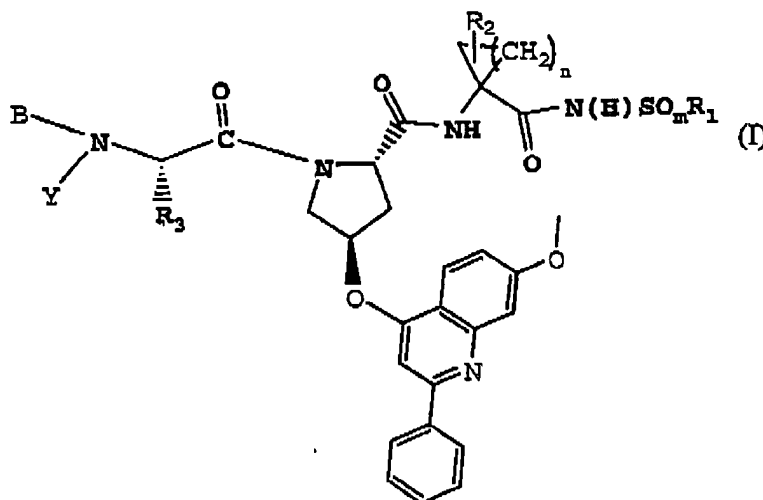
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**CLAIM AMENDMENTS**

Please amend claims 26 and 32, and add new claim 35 as follows:

**Amendments to the Claims:**

Claim 1 (Original) A compound having the formula



wherein:

- (a)  $R_1$  is  $C_{1-8}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), which are all optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-8}$  alkoxy, amido, amino or phenyl, or  $R_1$  is  $C_{6 \text{ or } 10}$  aryl which is optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-8}$  alkyl,  $C_{1-8}$  alkoxy, amido, amino or phenyl;
- (b)  $m$  is 1 or 2;
- (c)  $n$  is 1 or 2;
- (d)  $R_2$  is  $C_{1-6}$  alkyl,  $C_{2-6}$  alkenyl or  $C_{3-7}$  cycloalkyl, each optionally substituted from one to three times with halogen, or  $R_2$  is H;
- (e)  $R_3$  is  $C_{1-8}$  alkyl optionally substituted with phenyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), wherein the cycloalkyl or alkylcycloalkyl are optionally substituted with hydroxy,  $C_{1-6}$  alkyl,  $C_{2-6}$  alkenyl; or  $C_{1-6}$  alkoxy or  $R_3$  together with the carbon atom to which it is attached forms a  $C_{3-7}$  cycloalkyl group optionally substituted with  $C_{2-8}$  alkenyl;
- (f)  $Y$  is H, phenyl substituted with nitro, pyridyl substituted with nitro, or  $C_{1-6}$  alkyl wherein said alkyl is optionally substituted with cyano, OH or  $C_{3-7}$  cycloalkyl;
- (g)  $B$  is H,  $C_{1-8}$  alkyl,  $R_4-(C=O)-$ ,  $R_4O(C=O)-$ ,  $R_4-N(R_5)-C(=O)-$ ,  $R_4-N(R_5)-C(=S)-$ ,  $R_4SO_2-$ , or  $R_4-N(R_5)-SO_2-$ ;

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- (h)  $R_4$  is (i)  $C_{1-10}$  alkyl optionally substituted with phenyl, carboxyl,  $C_{1-6}$  alkanoyl, 1-3 halogen, hydroxy,  $-OC(O)C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy, amino optionally mono-or-di substituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; or -O-phenyl optionally substituted with halogen or  $C_{1-6}$  alkoxy; (ii)  $C_{3-7}$  cycloalkyl,  $C_{3-7}$  cycloalkoxy, or  $C_{4-10}$  alkylcyclo-alkyl, all optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino optionally mono- or disubstituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; amido; or (lower alkyl)amido; (iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, halogen, nitro, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; (vi) bicyclo(1.1.1)pentane; (vii)  $-C(O)OC_{1-6}$  alkyl,  $C_{2-6}$ alkenyl,  $C_{2-6}$ alkynyl; and
- (i)  $R_5$  is H or  $C_{1-6}$  alkyl, said  $C_{1-6}$ alkyl optionally substituted with 1-3 halogens; or a pharmaceutically acceptable salt, solvate or prodrug thereof.

- Claim 2 (original) A compound of Claim 1 wherein m is 2.
- Claim 3 (original) A compound of Claim 1 wherein n is 1.
- Claim 4 (original) A compound of Claim 1 wherein  $R_1$  is cyclopropyl.
- Claim 5 (original) A compound of Claim 1 wherein  $R_1$  is cyclobutyl.
- Claim 6 (original) A compound of Claim 1 wherein  $R_1$  is optionally substituted phenyl.
- Claim 7 (original) A compound of Claim 1 wherein  $R_2$  is ethyl or vinyl.
- Claim 8 (original) A compound of Claim 1 wherein  $R_3$  is  $C_{1-6}$  alkyl.
- Claim 9 (original) A compound of Claim 1 wherein m is 2, n is 1 and  $R_2$  is ethyl.
- Claim 10 (original) A compound of Claim 9 wherein  $R_1$  is cyclopropyl.
- Claim 11 (original) A compound of Claim 9 wherein  $R_1$  is cyclobutyl.

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Claim 12 (original) A compound of Claim 9 wherein  $R_1$  is optionally substituted phenyl.

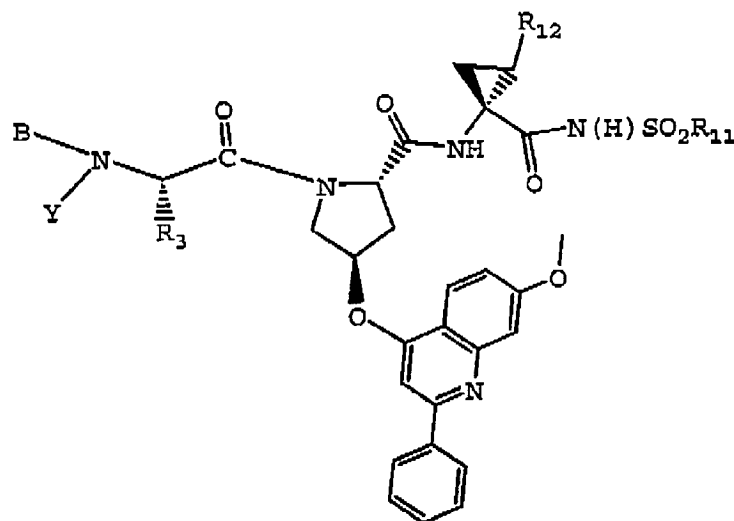
Claim 13 (original) A compound of Claim 1 wherein  $m$  is 2,  $n$  is 1 and  $R_2$  is vinyl.

Claim 14 (original) A compound of Claim 13 wherein  $R_1$  is cyclopropyl.

Claim 15 (original) A compound of Claim 13 wherein  $R_1$  is cyclobutyl.

Claim 16 (original) A compound of Claim 13 wherein  $R_1$  is optionally substituted phenyl.

Claim 17 (original) A compound having the formula



wherein:

- (a)  $R_{11}$  is  $C_{1-8}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$ (alkylcyclo-alkyl), naphthyl, or phenyl wherein said phenyl is optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy, amido, or phenyl;
- (b)  $R_{12}$  is  $C_{1-6}$  alkyl,  $C_{2-6}$  alkenyl or H;
- (c)  $R_3$  is  $C_{1-8}$  alkyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), wherein the cycloalkyl or alkylcycloalkyl are optionally substituted with hydroxy,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkenyl, or  $C_{1-6}$  alkoxy;
- (d) Y is H or  $C_{1-6}$  alkyl wherein said alkyl is optionally substituted with cyano or  $C_{3-7}$  cycloalkyl;
- (e) B is H,  $R_4-(C=O)-$ ,  $R_4O(C=O)-$ ,  $R_4-N(R_5)-C(=O)-$ ,  $R_4-N(R_5)-C(=S)-$ ,  $R_4SO_2-$ , or  $R_4-N(R_5)-SO_2-$ ;

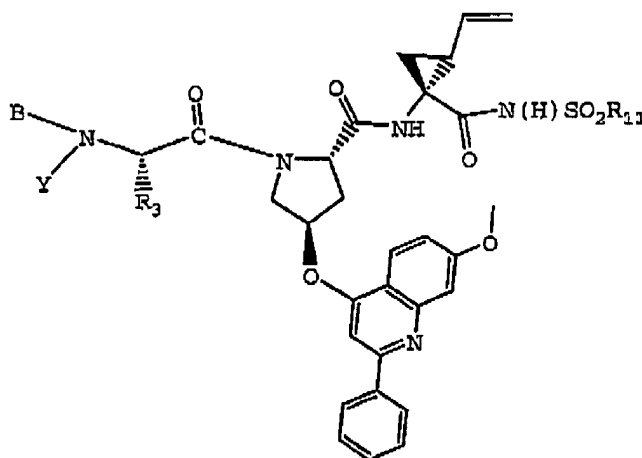
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- (f)  $R_4$  is (i)  $C_{1-10}$  alkyl optionally substituted with carboxyl,  $C_{1-6}$  alkanoyl, hydroxy,  $C_{1-6}$  alkoxy, amino optionally mono-or-di substituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (ii)  $C_{3-7}$  cycloalkyl,  $C_{3-7}$  cycloalkoxy, or  $C_{4-10}$  alkylcyclo-alkyl, all optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino optionally mono- or disubstituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; amido; or (lower alkyl)amido; (iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; and
- (g)  $R_5$  is H or  $C_{1-6}$  alkyl,  
or a pharmaceutically acceptable salt, solvate or prodrug thereof.

Claim 18 (original) A compound of Claim 17 wherein  $R_{11}$  is selected from cyclopropyl, cyclobutyl or optionally substituted phenyl.

Claim 19 (original) A compound having the formula



wherein:

- (a)  $R_{11}$  is  $C_{1-8}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcyclo-alkyl), naphthyl, or phenyl wherein said phenyl is optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy, amido, or phenyl;
- (b)  $R_3$  is  $C_{1-8}$  alkyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), wherein the cycloalkyl or alkylcycloalkyl are optionally substituted with hydroxy,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkenyl, or  $C_{1-6}$  alkoxy;

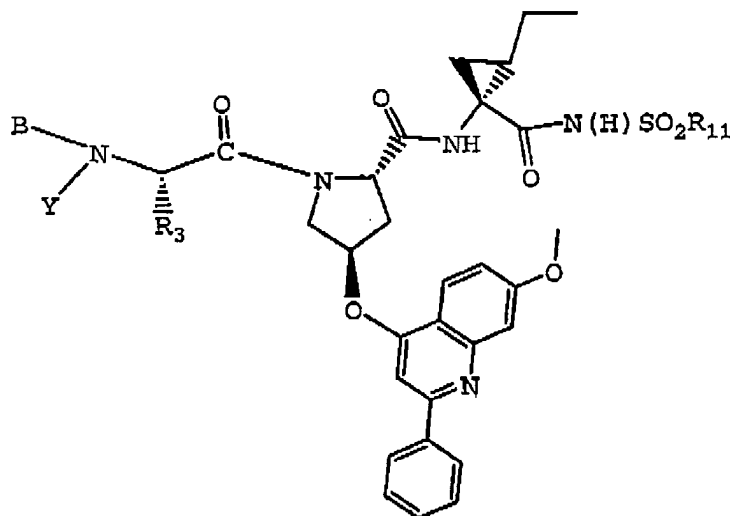
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- (c) Y is H or C<sub>1-6</sub> alkyl wherein said alkyl is optionally substituted with cyano or C<sub>3-7</sub> cycloalkyl;
- (d) B is H, R<sub>4</sub>-(C=O)-, R<sub>4</sub>O(C=O)-, R<sub>4</sub>-N(R<sub>5</sub>)-C(=O)-, R<sub>4</sub>-N(R<sub>5</sub>)-C(=S)-, R<sub>4</sub>SO<sub>2</sub>-, or R<sub>4</sub>-N(R<sub>5</sub>)-SO<sub>2</sub>-;
- (e) R<sub>4</sub> is (i) C<sub>1-10</sub> alkyl optionally substituted with carboxyl, C<sub>1-6</sub> alkanoyl, hydroxy, C<sub>1-6</sub> alkoxy, amino optionally mono-or-di substituted with C<sub>1-6</sub> alkyl, amido, or (lower alkyl) amido; (ii) C<sub>3-7</sub> cycloalkyl, C<sub>3-7</sub> cycloalkoxy, or C<sub>4-10</sub> alkylcyclo-alkyl, all optionally substituted with hydroxy, carboxyl, (C<sub>1-6</sub> alkoxy)carbonyl, amino optionally mono- or disubstituted with C<sub>1-6</sub> alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with C<sub>1-6</sub> alkyl; amido; or (lower alkyl)amido; (iv) C<sub>6</sub> or C<sub>10</sub> aryl or C<sub>7-18</sub> aralkyl, all optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with C<sub>1-6</sub> alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with C<sub>1-6</sub> alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with C<sub>1-6</sub> alkyl; and
- (f) R<sub>5</sub> is H or C<sub>1-6</sub> alkyl;
- or a pharmaceutically acceptable salt, solvate or prodrug thereof.

Claim 20 (original) A compound of Claim 19 wherein R<sub>11</sub> is selected from cyclopropyl, cyclobutyl or optionally substituted phenyl.

Claim 21 (original) A compound having the formula



wherein:

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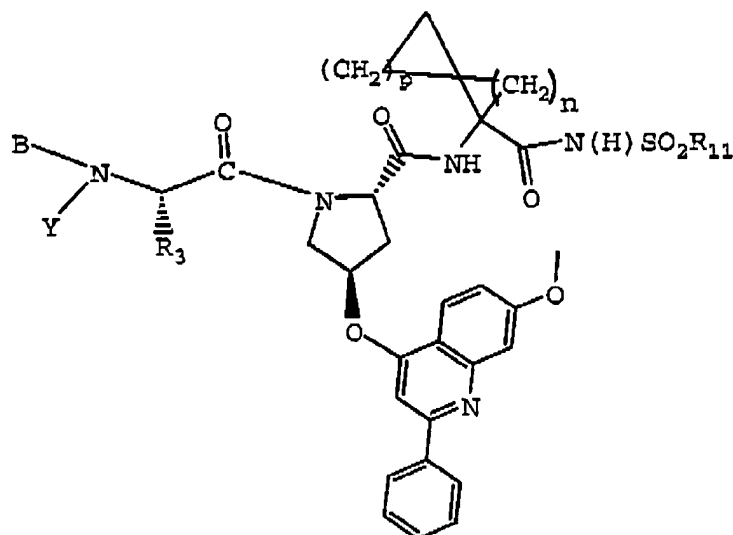
- (a)  $R_{11}$  is  $C_{1-6}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$ (alkylcyclo-alkyl), naphthyl, or phenyl wherein said phenyl is optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy, amido, or phenyl;
- (b)  $R_3$  is  $C_{1-6}$  alkyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), wherein the cycloalkyl or alkylcycloalkyl are optionally substituted with hydroxy,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkenyl, or  $C_{1-6}$  alkoxy;
- (c) Y is H or  $C_{1-6}$  alkyl wherein said alkyl is optionally substituted with cyano or  $C_{3-7}$  cycloalkyl;
- (d) B is H,  $R_4-(C=O)-$ ,  $R_4O(C=O)-$ ,  $R_4-N(R_5)-C(=O)-$ ,  $R_4-N(R_5)-C(=S)-$ ,  $R_4SO_2-$ , or  $R_4-N(R_5)-SO_2-$ ;
- (e)  $R_4$  is (i)  $C_{1-10}$  alkyl optionally substituted with carboxyl,  $C_{1-6}$  alkanoyl, hydroxy,  $C_{1-6}$  alkoxy, amino optionally mono-or-di substituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (ii)  $C_{3-7}$  cycloalkyl,  $C_{3-7}$  cycloalkoxy, or  $C_{4-10}$  alkylcyclo-alkyl, all optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino optionally mono- or disubstituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; amido; or (lower alkyl)amido; (iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; and
- (f)  $R_5$  is H or  $C_{1-6}$  alkyl;
- or a pharmaceutically acceptable salt, solvate or prodrug thereof.

Claim 22 (original) A compound of Claim 21 wherein  $R_{11}$  is selected from cyclopropyl, cyclobutyl or optionally substituted phenyl.

Claim 23 (original) A compound having the formula

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wherein:

- (a)  $R_{11}$  is  $C_{1-6}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$ (alkylcycloalkyl), naphthyl, or phenyl wherein said phenyl is optionally substituted from one to three times with halo, cyano, nitro,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkoxy, amido, or phenyl;
- (b)  $R_3$  is  $C_{1-6}$  alkyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), wherein the cycloalkyl or alkylcycloalkyl are optionally substituted with hydroxy,  $C_{1-6}$  alkyl,  $C_{1-6}$  alkenyl, or  $C_{1-6}$  alkoxy;
- (c) Y is H or  $C_{1-6}$  alkyl wherein said alkyl is optionally substituted with cyano or  $C_{3-7}$  cycloalkyl;
- (d) B is H,  $R_4-(C=O)-$ ,  $R_4O(C=O)-$ ,  $R_4-N(R_5)-C(=O)-$ ,  $R_4-N(R_5)-C(=S)-$ ,  $R_4SO_2-$ , or  $R_4-N(R_5)-SO_2-$ ;
- (e)  $R_4$  is (i)  $C_{1-10}$  alkyl optionally substituted with carboxyl,  $C_{1-6}$  alkanoyl, hydroxy,  $C_{1-6}$  alkoxy, amino optionally mono-or-di substituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (ii)  $C_{3-7}$  cycloalkyl,  $C_{3-7}$  cycloalkoxy, or  $C_{4-10}$  alkylcyclo-alkyl, all optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino optionally mono- or disubstituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; amido; or (lower alkyl)amido; (iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl;
- (f)  $R_5$  is H or  $C_{1-6}$  alkyl;

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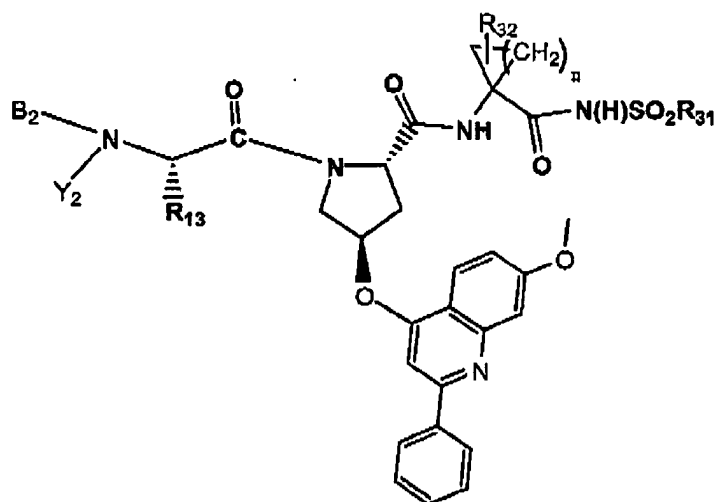
(g) n is 1 or 2; and

(h) p is 1, 2, 3, 4 or 5,

or a pharmaceutically acceptable salt, solvate or prodrug thereof.

Claim 24 (original) A compound of Claim 23 wherein  $R_{11}$  is selected from cyclopropyl, cyclobutyl or optionally substituted phenyl.

Claim 25 (original) A compound of having the formula



wherein:

- (a)  $R_{31}$  is  $C_{1-8}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  (alkylcycloalkyl), all optionally substituted with hydroxy, halo,  $C_{1-6}$  alkoxy,  $C_{1-6}$  thioalkyl, amido, amino, ( $C_{1-6}$  alkyl)amido,  $C_6$  or  $C_{10}$  aryl,  $C_{7-10}$  aralkyl, Het, or ( $C_{1-6}$  alkyl)-Het, said aryl, arylalkyl or Het being optionally substituted with halo, alkyl or lower alkyl Het;
- (b) n is 1 or 2;
- (c)  $R_{32}$  is H,  $C_{1-6}$  alkyl,  $C_{1-3}$  alkoxy,  $C_{3-7}$  cycloalkyl,  $C_{2-6}$  alkenyl, or  $C_{2-6}$  alkynyl, all optionally substituted with halogen;
- (d)  $R_{13}$  is  $C_{1-8}$  alkyl,  $C_{3-12}$  alkenyl,  $C_{3-7}$  cycloalkyl,  $C_{4-13}$  cycloalkenyl, or  $C_{4-10}$  (alkylcycloalkyl), all optionally substituted with hydroxy,  $C_{1-6}$  alkoxy,  $C_{1-6}$  thioalkyl, amino, amido, (loweralkyl) amido,  $C_6$  or  $C_{10}$  aryl, or  $C_{7-10}$  aralkyl;
- (e)  $Y_2$  is H or  $C_{1-6}$  alkyl;
- (f)  $B_2$  is H,  $R_{14}-(C=O)-$ ,  $R_{14}O(C=O)-$ ,  $R_{14}-N(R_{15})-C(=O)-$ ,  $R_{14}-N(R_{15})-C(=S)-$ ,  $R_{14}SO_2-$ , or  $R_{14}-N(R_{15})-SO_2-$ ;



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- (g)  $R_{14}$  is (i)  $C_{1-10}$  alkyl optionally substituted with carboxyl,  $C_{1-6}$  alkanoyl, hydroxy,  $C_{1-6}$  alkoxy, amino optionally mono-or-di substituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (ii)  $C_{3-7}$  cycloalkyl,  $C_{3-7}$  cycloalkoxy, or  $C_{4-10}$  alkylcycloalkyl, all optionally substituted with hydroxy, carboxyl, ( $C_{1-6}$  alkoxy)carbonyl, amino optionally mono- or disubstituted with  $C_{1-6}$  alkyl, amido, or (lower alkyl) amido; (iii) amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; amido; or (lower alkyl)amido; (iv)  $C_6$  or  $C_{10}$  aryl or  $C_{7-16}$  aralkyl, all optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; or (v) Het or (lower alkyl)-Het, both optionally substituted with  $C_{1-6}$  alkyl, hydroxy, amido, (lower alkyl) amido, or amino optionally mono-or-di-substituted with  $C_{1-6}$  alkyl; and
- (h)  $R_{15}$  is H or  $C_{1-6}$  alkyl.

Claim 26 (currently amended) A salt, solvate or ~~prodrug~~ prodrug of a compound of Claim 25.

Claim 27 (original) A compound of Claim 25 wherein  $R_{31}$  is  $C_{3-6}$  cycloalkyl,  $C_{4-10}$  alkylcycloalkyl,  $C_{1-6}$  alkyl  $CF_3$  or  $CCl_3$ .

Claim 28 (original) A compound of Claim 25 wherein  $B_2$  is an acyl derivative of formula  $R_{14}-O-(C=O)-$  or a carboxyl of formula  $R_{14}-O-(C=O)-$ .

Claim 29 (original) A compound of claim 25 wherein  $R_2$  is H,  $C_{1-3}$  alkyl,  $C_{3-6}$  cycloalkyl, or  $C_{2-4}$  alkenyl, all optionally substituted with halo.

Claim 30 (original) A compound of claim 25 wherein  $R_{31}$  is  $C_{1-6}$  alkyl,  $C_{3-7}$  cycloalkyl, or  $C_{4-10}$  alkylcycloalkyl, all optionally substituted with hydroxy,  $C_{1-6}$  alkoxy,  $C_{1-6}$  thioalkyl, acetamido or  $C_6$  or  $C_{10}$  aryl.

Claim 31 (previously presented) A compound of claim 25 wherein

$B_2$  is  $(CH_3)_3O-CO-$ ;

$Y_2$  is H; n is 1;

$R_{31}$  is methyl, cyclopropyl or  $-CF_3$ ;

$R_{32}$  is ethyl or vinyl; and

$R_{13}$  is t-butyl, i-propyl, s-butyl, i-butyl or cyclohexylmethyl.

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- Claim 32 (currently amended) A pharmaceutical composition, comprising
- (a) a compound of Claim 1-31, or a pharmaceutically acceptable salt, solvate or prodrug thereof; and
  - (b) a pharmaceutically acceptable carrier.

Claim 33 (cancelled).

Claim 34 (cancelled).

Claim 35 (new) A method of inhibiting HCV NS3 protease which comprises administering to a mammal in need of such treatment a therapeutically effective amount a compound of Claim 1-31 or a pharmaceutically acceptable salt, solvate of prodrug thereof.